

SEQUENCE LISTING

<110> Waldman, Scott A

<120> Metastatic Colorectal Cancer Vaccine

<130> TJU-2184

<140> 09/80237

<141> 1999-03-12

<150> PCT/US97/07565

<151> 1997-05-02

<150> 60/017,018

<151> 1996-05-03

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<170> PatentIn Ver. 2.1

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atg aag acg ttg ctg ttg gac ttg gct ttg tgg tca ctg ctc ttc cag 165

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ggc agc tat gaa atc agc gtc ctg atg atg ggc aac tca gcc ttt gca 261

Gly Ser Tyr Glu Ile Ser Val Leu Met Met Gly Asn Ser Ala Phe Ala

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gag ccc ctg aaa aac ttg gaa gat gcg gtg aat gag ggg ctg gaa ata 309

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Val	Arg	Gly	Arg	Leu	Gln	Asn	Ala	Gly	Leu	Asn	Val	Thr	Val	Asn	Ala	
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Thr	Phe	Met	Tyr	Ser	Asp	Gly	Leu	Ile	His	Asn	Ser	Gly	Asp	Cys	Arg	
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agt agc acc tgt gaa ggc ctc gac cta ctc agg aaa att tca aat gca															453	
Ser	Ser	Thr	Cys	Glu	Gly	Leu	Asp	Leu	Leu	Arg	Lys	Ile	Ser	Asn	Ala	
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Gln	Arg	Met	Gly	Cys	Val	Leu	Ile	Gly	Pro	Ser	Cys	Thr	Tyr	Ser	Thr	
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Met	Ser	Pro	Ala	Arg	Lys	Leu	Met	Tyr	Phe	Leu	Val	Asn	Phe	Trp	Lys	
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acc aac gat ctg ccc ttc aaa act tat tcc tgg agc act tcg tat gtt															693	
Thr	Asn	Asp	Leu	Pro	Phe	Lys	Thr	Tyr	Ser	Trp	Ser	Thr	Ser	Tyr	Val	
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Val	Leu	Arg	Gln	Asp	Lys	Glu	Phe	Gln	Asp	Ile	Leu	Met	Asp	His	Asn	
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agg aaa agc aat gtg att att atg tgt ggt ggt cca gag ttc ctc tac															885	

Arg Lys Ser Asn Val Ile Ile Met Cys Gly Gly Pro Glu Phe Leu Tyr			
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aag ctg aag ggt gac cga gca gtg gct gaa gac att gtc att att cta			933
Lys Leu Lys Gly Asp Arg Ala Val Ala Glu Asp Ile Val Ile Leu			
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Val Asp Leu Phe Asn Asp Gln Tyr Leu Glu Asp Asn Val Thr Ala Pro			
275	280	285	
gac tat atg aaa aat gtc ctt gtt ctg acg ctg tct cct ggg aat tcc			1029
Asp Tyr Met Lys Asn Val Leu Val Leu Thr Leu Ser Pro Gly Asn Ser			
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Leu Leu Asn Ser Ser Phe Ser Arg Asn Leu Ser Pro Thr Lys Arg Asp			
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Phe Arg Leu Ala Tyr Leu Asn Gly Ile Leu Val Phe Gly His Met Leu			
325	330	335	
aag ata ttt ctt gaa aat gga gaa aat att acc acc ccc aaa ttt gct			1173
Lys Ile Phe Leu Glu Asn Gly Glu Asn Ile Thr Thr Pro Lys Phe Ala			
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cat gcc ttc agg aat ctc act ttt gaa ggg tat gac ggt cca gtg acc			1221
His Ala Phe Arg Asn Leu Thr Phe Glu Gly Tyr Asp Gly Pro Val Thr			
355	360	365	
ttg gat gac tgg ggg gat gtt gac agt acc atg gtg ctt ctg tat acc			1269
Leu Asp Asp Trp Gly Asp Val Asp Ser Thr Met Val Leu Leu Tyr Thr			
370	375	380	
tct gtg gac acc aag aaa tac aag gtt ctt ttg acc tat gat acc cac			1317
Ser Val Asp Thr Lys Lys Tyr Lys Val Leu Leu Thr Tyr Asp Thr His			
385	390	395	400
gta aat aag acc tat cct gtg gat atg agc ccc aca ttc act tgg aag			1365
Val Asn Lys Thr Tyr Pro Val Asp Met Ser Pro Thr Phe Thr Trp Lys			
405	410	415	
aac tct aaa ctt cct aat gat att acq ggc cg <sup>g</sup> ggc cct cag atc ctg			1413
Asn Ser Lys Leu Pro Asn Asp Ile Thr Gly Arg Gly Pro Gln Ile Leu			
420	425	430	
atg att gca gtc ttc acc ctc act gga gct gtg gtg ctg ctc ctg ctc			1461

Met Ile Ala Val Phe Thr Leu Thr Gly Ala Val Val Leu Leu Leu Leu			
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Val Ala Leu Leu Met Leu Arg Lys Tyr Arg Lys Asp Tyr Glu Leu Arg			
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cag aaa aaa tgg tcc cac att cct cct gaa aat atc ttt cct ctg gag			1557
Gln Lys Lys Trp Ser His Ile Pro Pro Glu Asn Ile Phe Pro Leu Glu			
465	470	475	480
acc aat gag acc aat cat gtt agc ctc aag atc gat gat gac aaa aga			1605
Thr Asn Glu Thr Asn His Val Ser Leu Lys Ile Asp Asp Asp Lys Arg			
485	490	495	
cga gat aca atc cag aga cta cga cag tgc aaa tac gtc aaa aag cga			1653
Arg Asp Thr Ile Gln Arg Leu Arg Gln Cys Lys Tyr Val Lys Lys Arg			
500	505	510	
gtg att ctc aaa gat ctc aag cac aat gat ggt aat ttc act gaa aaa			1701
Val Ile Leu Lys Asp Leu Lys His Asn Asp Gly Asn Phe Thr Glu Lys			
515	520	525	
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Gln Lys Ile Glu Leu Asn Lys Leu Leu Gln Ile Asp Tyr Tyr Thr Leu			
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acc aag ttc tac ggg aca gtg aaa ctg gat acc atg atc ttc ggg gtg			1797
Thr Lys Phe Tyr Gly Thr Val Lys Leu Asp Thr Met Ile Phe Gly Val			
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Ile Glu Tyr Cys Glu Arg Gly Ser Leu Arg Glu Val Leu Asn Asp Thr			
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Ile Ser Tyr Pro Asp Gly Thr Phe Met Asp Trp Glu Phe Lys Ile Ser			
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Val Leu Tyr Asp Ile Ala Lys Gly Met Ser Tyr Leu His Ser Ser Lys			
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aca gaa gtc cat ggt cgt ctg aaa tct acc aac tgc gta gtg gac agt			1989
Thr Glu Val His Gly Arg Leu Lys Ser Thr Asn Cys Val Val Asp Ser			
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Arg Met Val Val Lys Ile Thr Asp Phe Gly Cys Asn Ser Ile Leu Pro			
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Pro Lys Lys Asp Leu Trp Thr Ala Pro Glu His Leu Arg Gln Ala Asn			
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Ile Ser Gln Lys Gly Asp Val Tyr Ser Tyr Gly Ile Ile Ala Gln Glu			
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atc att ctg cgg aaa gaa acc ttc tac act ttg agc tgt cgg gac cgg			2181
Ile Ile Leu Arg Lys Glu Thr Phe Tyr Thr Leu Ser Cys Arg Asp Arg			
675	680	685	
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Asn Glu Lys Ile Phe Arg Val Glu Asn Ser Asn Gly Met Lys Pro Phe			
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Tyr Leu Leu Val Lys Asn Cys Trp Glu Glu Asp Pro Glu Lys Arg Pro			
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His Asp Gln Lys Asn Glu Ser Tyr Met Asp Thr Leu Ile Arg Arg Leu			
755	760	765	
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770	775	780	
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ccg gaa cta tat gag gaa gtt aca atc tac ttc agt gac att gta ggt			2613

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gtc tac aag gtg gaa acc atc ggt gat gcg tac atg gtg gct agt ggt			2757
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gcc ttg gaa atc ctc agc ttc atg ggg acc ttt gag ctg gag cat ctt			2853
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cct ggc ctc cca ata tgg att cgc att gga gtt cac tct ggt ccc tgt			2901
Pro Gly Leu Pro Ile Trp Ile Arg Ile Gly Val His Ser Gly Pro Cys			
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Ala Ala Gly Val Val Gly Ile Lys Met Pro Arg Tyr Cys Leu Phe Gly			
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Asp Thr Val Asn Thr Ala Ser Arg Met Glu Ser Thr Gly Leu Pro Leu			
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Arg Ile His Val Ser Gly Ser Thr Ile Ala Ile Leu Lys Arg Thr Glu			
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Cys Gln Phe Leu Tyr Glu Val Arg Gly Glu Thr Tyr Leu Lys Gly Arg			
980	985	990	
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Phe																
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Glu Pro Leu Lys Asn Leu Glu Asp Ala Val Asn Glu Gly Leu Glu Ile  
50 55 60

Val Arg Gly Arg Leu Gln Asn Ala Gly Leu Asn Val Thr Val Asn Ala  
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85 90 95

Ser Ser Thr Cys Glu Gly Leu Asp Leu Leu Arg Lys Ile Ser Asn Ala  
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Met Ser Pro Ala Arg Lys Leu Met Tyr Phe Leu Val Asn Phe Trp Lys  
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Tyr Lys Asn Gly Thr Glu Thr Glu Asp Cys Phe Trp Tyr Leu Asn Ala  
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210 215 220

Val Leu Arg Gln Asp Lys Glu Phe Gln Asp Ile Leu Met Asp His Asn  
225 230 235 240

Arg Lys Ser Asn Val Ile Ile Met Cys Gly Gly Pro Glu Phe Leu Tyr  
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Lys Leu Lys Gly Asp Arg Ala Val Ala Glu Asp Ile Val Ile Ile Leu  
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Val Asp Leu Phe Asn Asp Gln Tyr Leu Glu Asp Asn Val Thr Ala Pro  
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Asp Tyr Met Lys Asn Val Leu Val Leu Thr Leu Ser Pro Gly Asn Ser  
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Leu Leu Asn Ser Ser Phe Ser Arg Asn Leu Ser Pro Thr Lys Arg Asp  
305 310 315 320

Phe Arg Leu Ala Tyr Leu Asn Gly Ile Leu Val Phe Gly His Met Leu  
325 330 335

Lys Ile Phe Leu Glu Asn Gly Glu Asn Ile Thr Thr Pro Lys Phe Ala  
340 345 350

His Ala Phe Arg Asn Leu Thr Phe Glu Gly Tyr Asp Gly Pro Val Thr  
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Leu Asp Asp Trp Gly Asp Val Asp Ser Thr Met Val Leu Leu Tyr Thr  
370 375 380

Ser Val Asp Thr Lys Lys Tyr Lys Val Leu Leu Thr Tyr Asp Thr His  
385 390 395 400

Val Asn Lys Thr Tyr Pro Val Asp Met Ser Pro Thr Phe Thr Trp Lys  
405 410 415

Asn Ser Lys Leu Pro Asn Asp Ile Thr Gly Arg Gly Pro Gln Ile Leu  
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465 470 475 480

Thr Asn Glu Thr Asn His Val Ser Leu Lys Ile Asp Asp Asp Lys Arg  
485 490 495

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Val Ile Leu Lys Asp Leu Lys His Asn Asp Gly Asn Phe Thr Glu Lys  
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595 600 605

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725 730 735

Asp Phe Lys Lys Ile Glu Thr Thr Leu Ala Lys Ile Phe Gly Leu Phe  
740 745 750

His Asp Gln Lys Asn Glu Ser Tyr Met Asp Thr Leu Ile Arg Arg Leu  
755 760 765

Gln Leu Tyr Ser Arg Asn Leu Glu His Leu Val Glu Glu Arg Thr Gln  
770 775 780

Leu Tyr Lys Ala Glu Arg Asp Arg Ala Asp Arg Leu Asn Phe Met Leu  
785 790 795 800

Leu Pro Arg Leu Val Val Lys Ser Leu Lys Glu Lys Gly Phe Val Glu  
805 810 815

Pro Glu Leu Tyr Glu Glu Val Thr Ile Tyr Phe Ser Asp Ile Val Gly  
820 825 830

Phe Thr Thr Ile Cys Lys Tyr Ser Thr Pro Met Glu Val Val Asp Met  
835 840 845

Leu Asn Asp Ile Tyr Lys Ser Phe Asp His Ile Val Asp His His Asp  
850 855 860

Val Tyr Lys Val Glu Thr Ile Gly Asp Ala Tyr Met Val Ala Ser Gly  
865 870 875 880

Leu Pro Lys Arg Asn Gly Asn Arg His Ala Ile Asp Ile Ala Lys Met  
885 890 895

Ala Leu Glu Ile Leu Ser Phe Met Gly Thr Phe Glu Leu Glu His Leu  
900 905 910

Pro Gly Leu Pro Ile Trp Ile Arg Ile Gly Val His Ser Gly Pro Cys  
915 920 925

Ala Ala Gly Val Val Gly Ile Lys Met Pro Arg Tyr Cys Leu Phe Gly  
930 935 940

Asp Thr Val Asn Thr Ala Ser Arg Met Glu Ser Thr Gly Leu Pro Leu  
945 950 955 960

Arg Ile His Val Ser Gly Ser Thr Ile Ala Ile Leu Lys Arg Thr Glu  
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Cys Gln Phe Leu Tyr Glu Val Arg Gly Glu Thr Tyr Leu Lys Gly Arg  
980 985 990

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995 1000 1005

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